

CLAIMS

We claim:

1. Apparatus for transferring an article from a first position to a second position without varying an angular orientation of the article, said
5 apparatus comprising, in combination:
 - a fixed shaft;
 - a housing journalled on said fixed shaft to be oscillatible with respect to said fixed shaft;
 - a first gear within said housing, said first gear being co-axial
10 with said first oscillatible shaft and being oscillatible with respect to said fixed shaft, said first gear having a plurality of teeth in an outer periphery;
 - a rotatable shaft mounted within said housing;
 - a second gear within said housing and oscillatible on said rotatable shaft with said housing, said second gear being spaced from said
15 first gear and being rotatable with respect to said housing about a central axis of said second gear, said central axis of said second gear being parallel to the axis of oscillation of said first gear;
 - a rack extending through said housing and having a plurality of teeth in engagement with teeth on said first gear and teeth on said second
20 gear; and
 - resilient biasing means for resiliently biasing said rack into engagement with said first gear and said second gear to minimize backlash between said first gear and said second gear.
- 25 2. Apparatus according to claim 1, wherein said biasing means comprises:
 - a first spring-mounted roller engaging said rack at a location opposed to and aligned with a central axis of said first gear; and
 - a second spring-mounted roller engaging said rack at a location
30 opposed to and aligned with a central axis of said second gear.

3. Apparatus according to claim 1 and further comprising:
a reversible a.c. servo motor for oscillatingly driving said first gear.

5 4. Apparatus according to claim 1 wherein:
said article is a hot, freshly-formed glass container, said first position is a molding position of an I.S. glass container forming machine, and said second position is a deadplate of the I.S. glass container forming machine.

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5. The method of providing a parallel motion to an article carried near an end of an arm that is oscillatable about an axis spaced from the end to prevent varying of an angular position of the article during oscillation of the arm, the method comprising:

15 providing a first gear with a plurality of teeth on a periphery thereof, the first gear being coaxial with the axis of oscillation of the arm, the first gear being oscillatable with the arm;

providing a second gear with a plurality of teeth on a periphery of the second gear, the second gear being spaced from the first gear, the second gear being oscillatable with the arm and rotatable with respect to the arm about an axis that is spaced from the axis of oscillation of the arm;

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simultaneously engaging the first gear and the second gear with a rack having a plurality of teeth in engagement with teeth on the first gear and teeth on the second gear; and

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resiliently biasing the rack into engagement with the first gear and the second gear.

6. The method according to claim 5 wherein the article is a hot, freshly-formed glass container and the arm is a takeout arm of an I.S. glass container forming machine.

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7. The method according to claim 6 and further comprising:
operating the arm in an environment where the temperature
exceeds 185°F.

5 8. The method according to claim 7 wherein the temperature is at
least 225°F.